

# Web Bandwidth Monitoring and Reduction with Firewall Operation

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## ABSTRACT

With the emergence of various internet applications, the use of the internet is being abused in the maximum possible way. Various organizations strive to pay the exceeding amount for the usage of the excess bandwidth. Considering this issue, we have designed a powerful tool that assures comfort of the network administrator and reduces the burden of over usage of bandwidth for an organization. With the help of token bucket algorithm, we have devised a system that ensures efficient monitoring and reduction of the bandwidth, which erases some major drawbacks of the existing systems. In addition, when it comes to end-to-end measurement of bandwidth, this tool also provides robust features of IP tracking and IP blocking, hence providing the firewall operation. Moreover, the feature of capturing of live desktop is added, which gives the network administrator, full control and access to the client's screen. Designed with a different approach, this system enhances the comforts of a network administrator and hence the organization, this system ensures that there is no unauthorized usage of the internet and the bandwidth usage is within the predefined limits.

**Keywords:** IP tracking, IP blocking, firewall operation, Excess bandwidth.

## I. INTRODUCTION

The usage of the internet is being misuse due to its misuse in a variety of ways, leading to the wastage of bandwidth, introduction of viruses in the system, spyware, etc. Many organizations spend large amount of money to the ISP provider but the overall estimated cost of the bandwidth used for actual productive purpose proves to be too less than what is being paid. In such situations, it becomes mandatory for a network administrator to manage the resources, which will lead to the optimized use of the resources. The bandwidth monitoring system is employed in order to find the usage of the available and bottleneck bandwidth and to control it from exceeding beyond the maximum value. The firewall operation blocks the usage of unauthorized websites using their IP address, thereby minimizing the excess use of the allocated bandwidth. Although the present system monitors the excess usage of bandwidth and ceases the access to unauthorized websites, one can surely download his personal documents saved on the Google Drive. This usage goes unnoticed most of the times, which proves the inefficiency of the system. For example, an employee access social

networking sites like Face book, Twitter, etc. during work hours, which abuses the efficient usage of the bandwidth. If the network administrator is aware of this loss, he/she can directly prohibit the person from using the bandwidth and thereby actions can be taken against the employee. Our goal is to build most robust techniques in order to produce accurate results at each intermediate step.

## II. PROBLEMT STATEMENT

Many organizations spend large amount of money to the ISP provider but the overall estimated cost of the bandwidth used for actual productive purpose proves to be too less than what is being paid. In such situations, it becomes mandatory for a network administrator to manage the resources, which will lead to the optimized use of the resources.

- Misuse the data in Varity of ways.

## ARTICLE INFO

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### III. PROPOSED SYSTEM

Our proposed system enables the network administrator to know the content, which is being used or being downloaded at the user’s end, while he is monitoring the bandwidth usage. This assigns the administrator, the power to decide the status of the content as valid or invalid and if it is invalid content, then block the user whose bandwidth usage exceeds the maximum value. If the content is a valid content, the administrator will thus allow the user to go with his current task, but he will be assigned a reduced bandwidth. Thus, our system deals with monitoring, controlling and reducing the assigned bandwidth. It should be noted that the technique of monitoring is applied to all the nodes, but the technique of controlling and reduction are applied to the node which exceeds in its bandwidth usage.

#### Modules

##### Login:

This module allows the user to login.

##### Register:

This module allow to new user to register.

##### Recovered Password:

This module allow to recovered password, if user forgot his current password.

##### Client Process:

This module allows performing operations such as uploading, downloading. It act as an employee in organization.

##### Policy Authorization:

This module used to allocate the policies and assigns to users.

##### Firewall App:

This module check whether the contents which are being use by client is valid or not. If invalid contents, blocked them. Otherwise continue his task.

one can surely download his personal documents saved on the Google Drive. This usage goes unnoticed most of the times, which proves the inefficiency of the system.

1. Client
2. Server
3. Network administrator.

1. Client: Upload or download the data.
2. Server: which is being used or being downloaded at the user’s end, while he is monitoring the bandwidth usage.
3. Network administrator: which is to decide the status of the content as valid or invalid and if it is invalid content, then block the user whose bandwidth usage exceeds the maximum value. If the content is a valid content, the administrator will thus allow the user to go on with his current task, but he will be assigned a reduced bandwidth.

### IV. RESULT

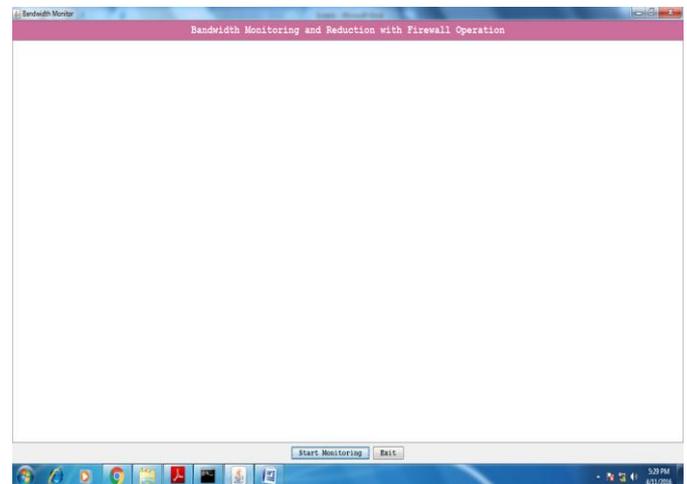


Fig 2. Home page

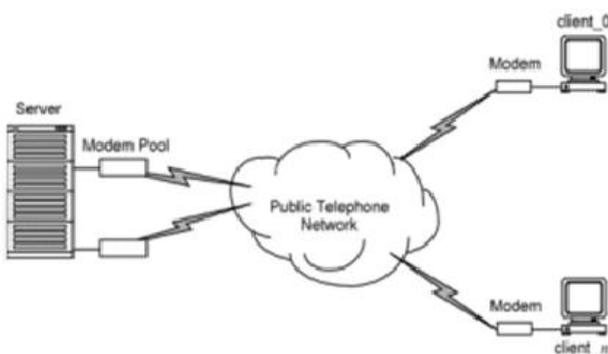


Fig 1. Server and client communication

#### Bandwidth monitoring System

The proposed system is to find the usage of the available and bottleneck bandwidth and to control it from exceeding beyond the maximum value. The firewall operation blocks the usage of unauthorized websites using their IP address, thereby minimizing the excess use of the allocated bandwidth. Although the present system monitors the excess usage of bandwidth and ceases the access to unauthorized websites,

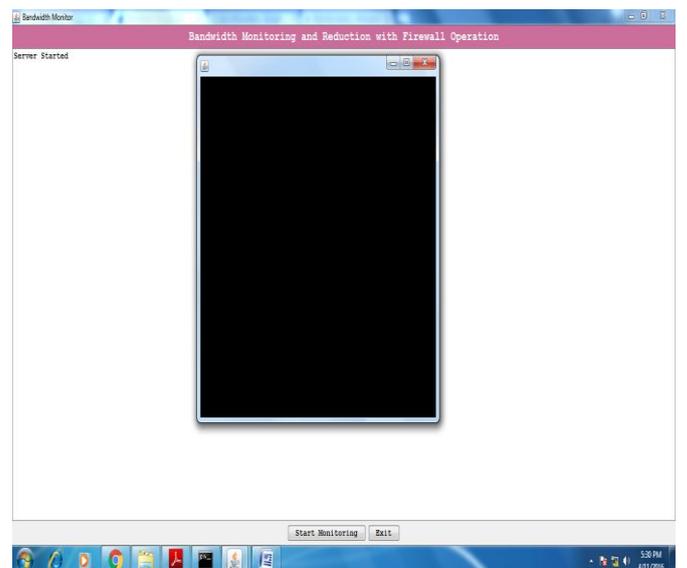


Fig 3. Strat monitoring system

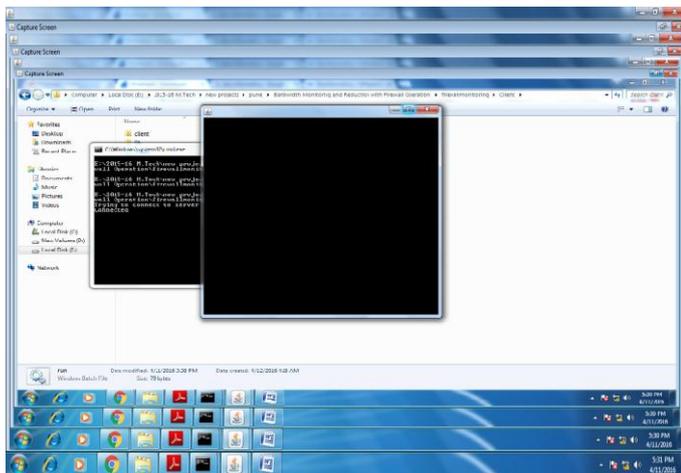


Fig 4. From user site it captures the screen and send to the server

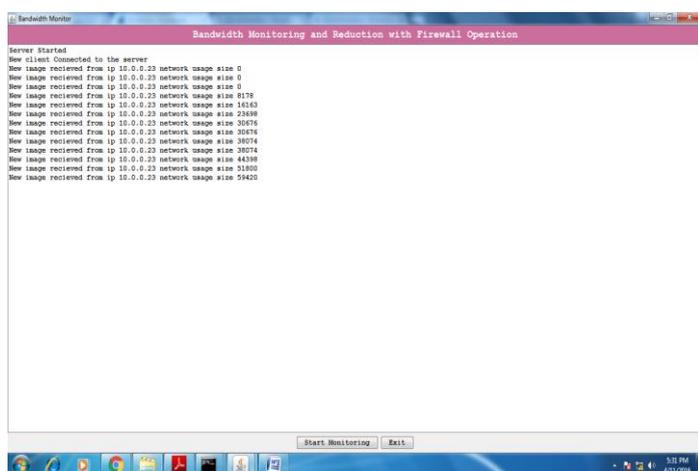


Fig 5. Server screen output

## V. CONCLUSION

The bandwidth monitoring system thus reduces the abuse caused by the users to the allocated bandwidth. The network administrator can now relax as there are control and reduction techniques applied to the exceeding bandwidth usage. Some of the most important aspects considered during the analysis of the product's performance are its ability to prioritize and allocate network bandwidth among hosts on a network, provide enough security as to prevent tampering with or taking over a disproportionate amount of bandwidth, centralized operations, multiplatform GUI.

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